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10/828,261	04/21/2004	Shuji Hirakata	119506	4840

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OLIFF & BERRIDGE, PLC
P.O. BOX 320850
ALEXANDRIA, VA 22320-4850

EXAMINER	
WANG, EUGENIA	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/828,261	HIRAKATA ET AL.	
	Examiner	Art Unit	
	EUGENIA WANG	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/2/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the reply received December 31, 2007:

a. Claims 13-15 have been added as per Applicant's request. Claims 1-15 are pending.

b. A new considered IDS has been sent out in light of the Amendment. It is noted that only the provided portion summary of DE 69701432 has been considered.

c. The core of the rejection is maintained, with any changes made in light of the amendment.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 31, 2007 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-10, 13, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a temperature-maintenance operation controller that operates while the system is not operating. However, this contradicts the language within the claim, as the claim also talks about detecting an operating while the system is not operating and using heat generated through the electrochemical reaction, while the system is not operating. See lines 6-9. It is unclear how the fuel cell system has an operating temperature and generates heat through electrochemical reaction if the system is not operating, and therefore the claim is indefinite. Since claims 2-15 are dependent on claim 1 and fail to rectify the problem, they are rejected for the same reason.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-10 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2001/0053469 (Kobayashi et al.).

As to claim 1, Kobayashi et al. teach a fuel cell system. In fig. 1, temperature sensors are placed to determine the temperature of the fuel cell – T3, which measures cathode exhaust prior being introduced to a compressor, and T2, which measures cathode exhaust after being introduced to a compressor, and T1, which measures the cathode inlet. Fig. 4 teaches a start up warming-up method for the fuel cell (para 0081,

lines 1-3). The controller judges whether the exhaust Ae at the outlet of the fuel cell of the cathode is lower than 20ºC, if not warm-up is finished, but if so warm-up is continued (para 0083; para 0084, lines 1-3). This sort of test is performed for the air exhaust discharge from the compressor, the limit being 130ºC, then warm up continues as well (para 0084, lines 10-15). It is also noted that exhaust gas from the fuel cell (heat generated through the electrochemical reaction) is recycled back to the fuel cell upon warm up conditions (para 0010; fig. 1). Therefore, the heat generated form the electrochemical reaction is at the very least capable for being used in a temperature-maintenance operation. Furthermore, by measuring temperatures (namely the one discharge side of the compressor), the system (via controller [4]) recognizes an abnormality and turns on an alarm lamp to inform the driver (para 0085). The abnormality discovered is based off of the internal temperature of the fuel cell and would inherently pertain to something within the fuel cell (be it the stack or the temperature sensor). The driver would then be motivated to discover what the abnormality stems from, and thus the controller [4] and the alarm lamp function as an abnormality determination unit and a warning issuance unit.

Therefore, at the very least, the apparatus of Kobayashi et al. is capable of performing the claimed actions, and thus the apparatus is the same as that of the claimed invention.

It has been held that the recitation of an element is "capable" of performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson,* 69 USPQ 138.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See also MPEP § 2114.

The manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Alternately, it can be interpreted that Kobayashi et al. does not specifically notify the driver of an abnormality that definitely corresponds with the temperature sensor. However, the abnormality discovered is based off of the internal temperature of the fuel cell and would pertain to something within the fuel cell (be it the stack or the temperature sensor). The motivation form making the differentiation of what the

abnormality pertains to is to give the driver more information about where the problem with the fuel cell lies. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to further differentiate between a temperature detector defect or a fuel cell stack defect in order to make malfunction determination easier on the driver.

As to claim 2, Kobayashi et al.'s system, since it has temperature sensors, a controller, which also detects abnormality, as well as a warning issuance unit (as exemplified by the warning lamp function), would be capable of being programmed in such a manner that the warm-up process (temperature maintenance operation) is stopped via controller [4] when the fuel cell operating temperature detected by temperature detector (T2 and T3 represent internal fuel cell temperature to some degree) exceeds or is equal to a second reference temperature which is higher than the first reference temperature. (See rejection of claim 1 for the Office's position on "capable" of for an apparatus claim.)

As to claim 3, Kobayashi et al. has a plurality of temperature detectors, as previously mentioned T1, T2, and T3 (fig. 1). Both T2 and T3 report the internal fuel cell temperature to some extent, as they are placed in the fuel cell exhaust line. Although the abnormality is tested in the T2 and not T3 line, apparatus taught would be capable of applying the abnormality test to both internal temperature indicators. (See rejection of claim 1 for the Office's position on "capable" of for an apparatus claim.)

As to claim 4, Kobayashi et al. teach a fuel cell system. In fig. 1, temperature sensors are placed to determine temperature of the fuel cell – T3, which measures

cathode exhaust prior being introduced to a compressor, and T2, which measures cathode exhaust after being introduced to a compressor, and T1, which measures the cathode inlet. (Both T2 and T3 report the internal fuel cell temperature to some extent, as they are placed in the fuel cell exhaust line.) Fig. 4 teaches a start up warming-up method for the fuel cell (para 0081, lines 1-3). The controller judges whether the exhaust Ae at the outlet of the fuel cell of the cathode is lower than 20°C, if not warm-up is finished, but if so warm-up is continued (para 0083; para 0084, lines 1-3). This sort of test is performed for the air exhaust discharge from the compressor, the limit being 130°C, then warm up continues as well (para 0084, lines 10-15). It is also noted that exhaust gas from the fuel cell (heat generated through the electrochemical reaction) is recycled back to the fuel cell upon warm up conditions (para 0010; fig. 1). Therefore, at the very least, the heat generated by the electrochemical reaction is capable of being used for temperature-maintenance. Furthermore, by measuring temperatures (namely the one discharge side of the compressor), the system (via controller [4]) recognizes an abnormality and turns on an alarm lamp to inform the driver (para 0085). Although the abnormality is tested in the T2 and not T3 line, apparatus taught would be capable of applying the abnormality test to both internal temperature indicators. Additionally, the apparatus of Kobayashi et al. is also capable of continuing temperature-maintenance operation if no abnormality is detected in the remaining temperature detectors, where abnormality is determined when the temperature detectors detect a temperature equal to or less than a first reference temperature. (See rejection of claim 1 for the Office's position on "capable" of for an apparatus claim.)

Alternately, it can be interpreted that Kobayashi et al. does not specifically notify the driver of an abnormality that definitely corresponds with the temperature sensor. However, the abnormality discovered is based off of the internal temperature of the fuel cell and would pertain to something within the fuel cell (be it the stack or the temperature sensor). The motivation form making the differentiation of what the abnormality pertains to is to give the driver more information about where the problem with the fuel cell lies. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to further differentiate between a temperature detector defect or a fuel cell stack defect in order to make malfunction determination easier on the driver.

As to claim 5, Kobayashi et al.'s system, since it has temperature sensors and a controller, which also detects abnormality, would be capable of being programmed in such a manner that the warm-up process (temperature maintenance operation) is stopped via controller [4] when the fuel cell operating temperature detected by temperature detector (T2 and T3 represent internal fuel cell temperature to some degree) exceeds or is equal to a second reference temperature which is higher than the first reference temperature.

As to claims 6-10, Kobayashi et al.'s warning would signal with an abnormality of the temperature detector, where a problem in the temperature detector would inherently be indicated. However, a disconnection or short circuit is not exemplified. However, Kobayashi et al.'s system, which contains all of the components as that of the claimed invention, would be capable of having the temperature detector send a signal indicating

disconnection or short-circuit to controller [4]. (See rejection of claim 1 for the Office's position on "capable" of for an apparatus claim.)

Claim Rejections - 35 USC § 103

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al in view of US 2003/0029179 (Vander Woude et al.).

As to claim 11, Kobayashi et al. teach a fuel cell system. In fig. 1, temperature sensors are placed to determine the temperature of the fuel cell – T3, which measures cathode exhaust prior being introduced to a compressor, and T2, which measures cathode exhaust after being introduced to a compressor, and T1, which measures the cathode inlet. (Both T2 and T3 report the internal fuel cell temperature to some extent, as they are placed in the fuel cell exhaust line.) Fig. 4 teaches a start up warming-up method for the fuel cell (para 0081, lines 1-3). The controller judges whether the exhaust Ae at the outlet of the fuel cell of the cathode is *lower* than 20ºC, if not warm-up is finished, but if so warm-up is continued (para 0083; para 0084, lines 1-3). It is noted that exhaust fro the fuel cell is recycled to the reactant during warm-up (para 0009-0010). (The exhaust of a fuel cell system holds heat generated from the electrochemical reaction.) This sort of test is performed for the air exhaust discharge from the compressor, the limit being 130ºC, then warm up continues as well (para 0084, lines 10-15). Furthermore, by measuring temperatures (namely the one discharge side of the compressor), the system (via controller [4]) recognizes an abnormality and turns on an alarm lamp to inform the driver (para 0085). The abnormality discovered is based

off of the internal temperature of the fuel cell and would pertain to something within the fuel cell (be it the stack or the temperature sensor).

Kobayashi et al. does not specifically teach that the abnormality detected and warning issued corresponds specifically to the temperature detector. However Vander Woude et al. teach a cryogenic temperature control apparatus and method. The system provides a plurality of temperature values to a controller (abs). Furthermore, controller [34] is programmed to accommodate failure of the sensors (para 044, lines 1-2). Vander Woude et al.'s method determines if sensors are damaged or defective – checking if the temperature sensors [45, 46] fall outside a certain range (para 0044, lines 2-7). If the sensor fails, the control apparatus [12] activates an alarm (para 0044, lines 8-10). The motivation for combining the Vander Woude et al. teaching with the Kobayashi et al. teaching is that they address the same problem, an abnormality with a system that is dependent on temperature values. Furthermore, it would further be a motivation to provide a fuel cell system (as taught by Kobayashi et al.) that can determine whether the fuel cell stack has the problem or the temperature sensor has the problem, so that it can be fixed more easily. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to combine the defective temperature sensor method or Vander Woude et al. with the fuel cell system of Kobayashi et al. in order to more effectively inform the user of the specific placement of a defect in the fuel cell system (specifically the temperature sensor).

As to claim 12, Vander Woude et al. teach a system where defrosting is initiated when the evaporator coil outlet temperature (ECOT) is equal to or less than -40°F (para

0053, lines 1-3). Once the defrost mode is initiated, the defrosting continues until the ECOT reaches 59ºF (para 0054, lines 1-5). (Again, the art of Kobayashi et al. and Vander Woude et al. can be combined, because they are used to solve the same problem– detecting abnormality (as discussed with the claim 11 rejection). Furthermore, this mode of operation of Vander Woude et al. pertains to warming-up of a system, as is taught by Kobayashi et al.)

6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al., as applied to claims 1 and 4, in view of US 2003/0031905 (Saito et al.).

As to claims 13 and 14, Kobayashi et al. does not teach the inclusion of a secondary battery.

Saitou et al. teaches the inclusion of a secondary battery, which can be charged from the fuel cell. (para 0171-0172). The motivation for including a secondary battery would be to operate the reactant feed to the fuel cell (para 0171). Therefore one of ordinary skill in the art at the time the invention was made would have found it obvious to include the secondary battery hooked up to a fuel cell for charging in order to properly provide the power needed to supply the reactants to the fuel cell.

Note: The apparatus of Kobayashi et al. and Saitou et al. teaches the temperatures sensors, controller, fuel cell exhaust gas, and secondary battery connected in the same way as the apparatus of claims 13 and 14, and thus would be capable of operating in the same manner (namely a defined "maintenance control operation" wherein the temperature is being read, the fuel cell is producing energy, the

controller is controlling the operation, wherein a secondary battery is being charge). For the office's position on "capable of" for apparatus cases, please see the rejection to claim 1.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. in view of Vander Woude et al., as applied to claim 11, in view of Saitou et al.

Saitou et al. teaches the inclusion of a secondary battery, which can be charged from the fuel cell upon generation of electricity (para 0171-0172). The motivation for including a secondary battery would be to operate the reactant feed to the fuel cell (para 0171). Therefore one of ordinary skill in the art at the time the invention was made would have found it obvious to include the secondary battery hooked up to a fuel cell for charging in order to properly provide the power needed to supply the reactants to the fuel cell. (It is noted that with respect to this claims 15, the "temperature –maintenance operation" is defined from warm up to normal action of the fuel cell, wherein only the warm-up portion is relied upon to teach the claimed method of claim 11.)

Response to Arguments

8. Applicant's arguments filed December 31, 2007 have been fully considered but they are not persuasive.

Applicant argues (1), with respect to claims 1 and 4, that Kobayashi does not disclose a temperature-maintenance operation controller that while the fuel cell system is not operating executes temperature-maintenance operation of said fuel cell using heat generated through electrochemical reaction and, with respect to claim 11,

Kobayashi does not disclose a temperature-maintenance operation of the fuel cell using heat generated through electrochemical reaction.

Examiner respectfully disagrees. With respect to the apparatus claims (1 and 4), Kobayashi does teach the recycling of fuel cell exhaust (where heat of the electrochemical reaction resides) is recycled to the reactant (see fig. 1; abs.; para 0009-0010). Therefore, the apparatus of Kobayashi et al. is structurally the same as that of the instant application. With respect to the method claim (11), Kobayashi, as mentioned above, does recycle fuel cell exhaust to the reactants (where the heat of the electrochemical reaction resides (see fig. 1; abs.; para 0009-0010).

Applicant argues that Kobayashi et al.'s alarm responds to particular temperature situation rather than an abnormality in temperature sensor itself.

Examiner respectfully disagrees. It is set forth that the alarm would respond to all kinds of abnormalities, which includes causing the alarm to turn on if a sensor is broken and thus reports an abnormal temperature. Applicant has not clearly set forth how an abnormal reading due to a sensor malfunctioning would not be reported. Examiner would also like to note that in addition to the inherent characteristic as set forth above, an alternate obviousness statement was also set forth, wherein the motivation for making the differentiation of what sort of abnormality occurs would be in order to make malfunction determination easier on the driver.

Applicant argues that Kobayashi does not disclose a temperature-maintenance mode as claimed.

Examiner respectfully disagrees. With respect to claims 1 and 4 (apparatus), the system of Kobayashi et al., which is connected in the same manner as the instant application, is capable of performing any number of differently defined "temperature-maintenance operations." For the Office's view on "capable of" with respect to apparatus claims, please see the rejection to claim 1. With respect to claim 11 (method) as well as claims 1 and 4 (apparatus), Examiner upholds the previous interpretation, reiterated herein for clarity's sake: Without a specified definition of maintenance mode, both the normal mode or warm-up mode could be defined as a maintenance mode with respect to a maintenance operation. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a certain type of temperature operation mode) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that the Office is required to interpret the claims in light of the specification.

Examiner respectfully disagrees. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989).

Applicant argues that the warm-up mode cannot be construed as a maintenance operation, because the warm-up mode is part of the normal operation of the fuel cell, while the temperature-maintenance operation that is performed is independent of the normal operation.

Examiner respectfully disagrees. Examiner again would like to again note that without a specified definition of maintenance mode, both the normal mode or warm-up mode could be defined as a maintenance mode with respect to a maintenance operation. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the temperature-maintenance mode is separate from the normal operation of the fuel cell) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that the recited temperature-maintenance operation defines the structural parameters of the claimed temperature-maintenance controller (and thus is not intended use/functional language).

Examiner respectfully disagrees. It is held that the apparatus of Kobayashi is the same as the claimed application and thus is capable of performing the operational functions in the apparatus claims. It is uncertain how operational conditions (function) further defines the structure of the apparatus. (Note: This argument is only applicable to the apparatus claims (claims 1 and 4), as only the apparatus claims define a temperature-maintenance operation (specifically occurring when the fuel cell system is

not operating). Claim 11 (method) fails to define the parameters of the temperature-maintenance operation, and as above it has been held that warm up mode and normal mode could be construed as a temperature maintenance mode barring further specification as to what constitutes the temperature maintenance mode.)

Applicant argues that Kobayashi fails to disclose a temperature-maintenance operation controller that operates in a manner wherein said fuel cell operating temperature equals or is less than a first reference temperature while said fuel cell system is not operating, *executes temperature-maintenance operation of said fuel cell using heat generated through electrochemical reaction.*

Examiner respectfully disagrees. This limitation is new to the claims and has been included within the rejections to claims 1, 4, and 11 above. The above rejections to claims 1, 4 , and 11 show that Kobayashi et al. reintroduces fuel cell exhaust (where the heat of the reaction is stored) back into the reactant supply (abs.; para 0009-0010).

With respect to claims 1, 4, and 11, Applicant argues (2) that Kobayashi does not teach an abnormality detection unit that determines whether a detected abnormality regarding the fuel cell operating temperature has occurred in the temperature detector.

Examiner respectfully disagrees. With respect to the apparatus claims (1 and 4), this function is rejected as being either inherent to the system or else obvious. For the method claims (11), Vander Woude is relied upon. Examiner addresses the particular arguments as to case (2) below.

Applicant argues that Kobayashi et al. fails to disclose or suggest detection or determination of an abnormality in a temperature detector. With regards to the 102(b)

rejection, Applicant specifically argues that because an abnormality detector that detects abnormalities in a temperature detector is not needed to function, it is not inherent.

Examiner respectfully disagrees. If the sensors in the apparatus of Kobayashi et al. fail the programmed test, the alarm would indicate it. Therefore, if a sensor malfunctions in such a manner, the abnormality is still reported. Applicant has not shown that an abnormality in the sensor in such a case does not get sent to the alarm. In such a manner, an abnormality in the temperature detector would be reported.

Applicant argues that one of ordinary skill in the art would not have recognized that that sensors could possibly fail, and saying such is impermissible hindsight.

Examiner respectfully disagrees. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Examiner has set forth a reasoning for differentiating abnormalities, which lies in differentiating where the problem within a fuel cell system lies. Applicant has not set for a clear rationale as to why one of ordinary skill in the art would not have recognized a situation wherein a sensor could fail and would want to distinguish it accordingly.

Applicant argues the combination of Kobayashi et al. with Vander Woude's, specifically noting that Vander Woude is non-analogous art and because it (1) is not in the field of endeavor as the claimed subject matter, and (2) is not directed to the same particular problem, since it is (1) drawn to cryogenic control and (2) drawn to maintaining cryogenic temperatures (rather than warming).

Examiner respectfully disagrees. Applicant's interpretation of the second prong is incorrect. Although the use of the sensors is to ensure cryogenic temperatures, the problem that is being addressed is the failure of sensors. Therefore, since Vander Woulde solves the same problem (failure of sensors), it is combinable with Kobayashi.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENIA WANG whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. W./
Examiner, Art Unit 1795

/Gregg Cantelmo/
for E. Wang, Examiner of Art Unit 1795